OPERATING INSTRUCTIONS for the

ALLEN

MODEL E-323 (6 VOLT)
MODEL E-323X (12 VOLT)
POWER TIMING LIGHT

ALLEN EQUIPMENT CORRECTLY OPERATED

MEANS MORE SATISFIED CUSTOMERS

ALLEN ELECTRIC and EQUIPMENT COMPANY • KALAMAZOO, MICHIGAN

PRICE
25 CENTS

IMPORTANT NOTICE TO PURCHASER
MAIL WARRANTY CARD PROMPTLY

To protect your Warranty, and to give us an accurate record, it is necessary that your Warranty Card is detached and mailed to the factory promptly.

Warranty details and procedure may be found in front of the Instruction Manual.

ALLEN ELECTRIC AND EQUIPMENT COMPANY
KALAMAZOO, 13F, MICHIGAN, U. S. A.

WARRANTY CARD

TO THE PURCHASER: Fill out and return promptly to register for warranty and information on future developments, specifications, etc. Type or Print plainly.

MODEL _____ SERIAL _____
Firm Name _____
Address _____
City, State _____
Date of Purchase _____
Jobber from whom purchased _____

Do you wish to be placed on mailing list? Yes___ No_____
Failure to properly register this unit voids warranty.
Form No. 557A Printed in U. S. A.

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 119 SEC. 510, P. L. & R., KALAMAZOO, MICH.

ALLEN ELECTRIC AND EQUIPMENT CO.

2101-2117 NORTH PITCHER STREET

KALAMAZOO, MICHIGAN, U. S. A.

ALLEN EQUIPMENT REPAIR SERVICE

AUTHORIZED FIELD SERVICE STATION

Allen Equipment in need of service should be shipped to one of the Allen Authorized Field Service Stations listed on the next sheet, or the factory whichever is nearer.

To expedite prompt repairs, your return order should contain a brief explanation of the difficulty, and specifically state whether the unit is to be repaired or reconditioned.

If the equipment is to be repaired, it will be place in proper operating condition only.

If reconditioning is requested, the leads will be replaced, the unit refinished and placed in "like new" condition.

WARRANTY SERVICE

When repairs under warranty are expected, the following must be furnished at the time the unit is shipped to the factory, or Authorized Field Service Station for repairs:

Owner's Name
Owner's Address
Wholesaler's Name
Wholesaler's Address
Model Number of Unit
Serial Number of Unit
Date of Purchase by Using Owner

By following the proper procedure, you will assist the Allen Authorized Field Service Station or the factory, in efficiently performing the work needed and returning your equipment to you with a minimum of delay.

WARRANTY POLICY

Allen equipment is warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months after date of delivery to the original using purchaser.

Equipment found defective within warranty, and returned to our factory or Authorized Field Service Station, will be repaired no-charge and returned by collect transportation.

REPLACEMENT PARTS

Replacement Parts may be obtained by ordering from Field Service Station who carry a large stock of replacement parts as indicated on the Service Station listing. Part number for Replacement Parts may be found in the back of the Instruction Manual.

Always specify model and serial number of the equipment, as well as voltage and cycles, as indicated on the equipment name plate when ordering parts.

ALLEN ELECTRIC AND EQUIPMENT COMPANY
KALAMAZOO, 13F, MICHIGAN, U.S.A.

Form No. 503A
(Supersedes Form No. 503) Printed in U.S.A.

CARE AND MAINTENANCE OF ALLEN ELECTRICAL EQUIPMENT

1. DO NOT allow petroleum products, acids or alkalies, to come in contact with painted surfaces or plastic components.

2. Use a clean soft cloth for a DAILY dust cloth.

3. PLASTIC PANELS, LEADS AND SOCKS should be cleaned with MILD SOAP AND WATER.

4. SMALL SCRATCHES can sometimes be removed from plastic with rouge.

5. CORRODED TERMINALS can be cleaned with a solution of baking soda and water.

6. HEAT, generated in leads and clips, which becomes more than warm to the touch is a result of a poor connection and will result in an extra load being placed on the unit.

7. LARGE ranges have been placed on meters for heavy loads, SMALL ranges for finer reading. Always select the range large enough for the job, or damage will result.

8. IN MAKING ELECTRICAL CONNECTIONS, always watch the meter when you cause the current to flow; don't overload the meter. Use the proper shunt.

9. MOISTURE is second only to grease-and-dirt in shortening the life of electrical equipment. One of the less obvious ways in which moisture can damage equipment is to store in a non-heated area. Moisture can cause meters to stick, transformers to short, insulation and condensers to deteriorate.

10. METERS REQUIRING A POWER SUPPLY. A. C. or D. C. current may be required. It may be of a high or low voltage. Exercise caution in connection of units to proper voltage source.

11. POWER TIMING LAMP. Its life will be greatly lengthened if disconnected when not in use.

12. POLARITY. Care should be exercised to see that units are not connected in reverse polarity.

13. In most cases, when units have been subjected to materials used in fire extinguishers, they may be considered beyond repair in making insurance adjustment.

14. SIX VOLT PLUG-IN RECEPTACLE UNITS will work better after a small amount of powdered graphite has been applied.

15. FANS. Units having a fan for cooling purposes cannot function well if covered, as air flow is restricted.

16. METERS exposed to the sun's rays for long periods of time will fade.

17. GROWLERS should not be turned "ON" unless first an armature has been placed into position to test.

18. UNITS USING FLASHLIGHT BATTERIES should be turned to the "OFF" position when not in use. When the batteries become discharged they should be removed at once, or damage will result.

19. IN EACH INSTANCE, REFER TO THE INSTRUCTION MANUAL BEFORE ATTEMPTING TO OPERATE. MINOR CHANGES HAVE SOMETIMES BEEN MADE, AND NEW MODELS MAY OPERATE DIFFERENTLY THAN PREVIOUS ONES.

ALLEN *ELECTRIC and EQUIPMENT CO.*
KALAMAZOO, MICHIGAN

Form No. 503A
Supersedes Form No. 503

Printed in U. S. A.

AUTHORIZED ALLEN SERVICE STATIONS

UNITED STATES AND CANADA

	NAME OF SERVICE STATION
ALBERTA	
Edmonton	Loveseth Service Station Ltd., 10559 Jasper Avenue
ARIZONA	
Phoenix	Ra-Tone Electronics Co., 128 West Washington
Tucson	Miller-Rasor Radio, 311 East 7th Street
Tucson	Wilson's Radio Service, 3331 E. Bermuda Avenue
BRITISH COLUMBIA	
Vancouver	*Instrument Service Laboratories, Ltd., 21 W. Broadway
CALIFORNIA	
Los Angeles	*Vernon Electric Co., 233 West Jefferson Boulevard
Los Angeles	Sam A. Willey, 5426 West Washington Boulevard
Oakland	*Automotive Equipment Service, 293 - 26th Street
San Diego	Scott Instrument Laboratory, 3927 - 3rd Avenue
San Francisco	Battery & Electrical Equipment Service, 1016 Bryant St.
COLORADO	
Denver	*Frank L. Ficca Auto Electric, 1215 - 24th St. at Broadway
Trinidad	Macaluso Repair Service, 421 West Main
CONNECTICUT	
New Haven	A. A. Electric Co., 533 George Street
DIST. OF COLUMBIA	
Washington	*Erco, Inc., 1724 - 14th Street, N.W.
FLORIDA	
Miami	Florida Precision Instr. Repair Co., 1211 Biscayne Blvd.
Orlando	Fenton's Radio & Appliance, 2204 Edgewater Drive
GEORGIA	
Atlanta	*Southern Meter & Transformer, 1375 Lee St., S.W.
Macon	Thomas Meter & Radio Service, 2766 Montpeliar Ave.
IDAHO	
Blackfoot	Lloyd's Magneto Service, 477 West Bridge Street
Boise	Bodily Radio Service, 1603 North 13th Street
Twin Falls	Factory Radio Service, 434 Main Avenue
ILLINOIS	
Chicago	Reliance Instrument Co., 3938 West Roosevelt Road
INDIANA	
Indianapolis	*Marcop Industries, 5112 East Michigan Street
KANSAS	
Salina	*Wallis Equipment Co., 516 North 9th, P.O. Box 1057
MASSACHUSETTS	
Watertown	*Electronic Tune-Up Co., 5 Louise Street
MICHIGAN	
Detroit	*Randall's Battery Charger Service, 5412 Lincoln Avenue
MINNESOTA	
Minneapolis	*Welco Warehouse, 28 South 10th Street
MISSOURI	
Independence	*Walters Radio Supply, 212 South Liberty
NEBRASKA	
Omaha	K. & S. Instrument Co., 3503-1/2 Leavenworth
NEW BRUNSWICK	
Fredericton	Craig Electric Co., Ltd., P.O. Box 961 Union St.

AUTHORIZED ALLEN SERVICE STATIONS - (CONTINUED)

UNITED STATES AND CANADA

	NAME OF SERVICE STATION
NEW MEXICO	
Albuquerque	Automotive Equipment Repair, 1522 North Second
NEW YORK	
Brooklyn	*E. A. Wildermuth, Inc., 1102 Atlantic Avenue
Lackawanna	Allen Service Center of Buffalo, Ridge Rd. & Franklin St.
Troy	R. V. Farmer Carburetor & Ignition Service, 113th Street & 5th Avenue
NORTH CAROLINA	
Charlotte	Anderson TV & Appliance Co., 412 East Seventh St.
Raleigh	Electronics Sales & Service Co., Box 2395, 403 W. Peace St.
OHIO	
Akron	*Marcop Development & Service Co., 866 S. Arlington St.
Cincinnati	*Pleasant Electric Co., 1725 Central Avenue
OKLAHOMA	
Oklahoma City	Commercial Electric Repair, 1827 R. Linwood, Box 1043
ONTARIO	
Toronto	*Intricate Devices, 1103 Yonge Street
OREGON	
Portland	*Instrument Laboratory Inc., 1728 S. W. Harbor Drive
PENNSYLVANIA	
Drexel Hill	Springfield Instrument Co., State Rd. & Burmont Rd.
Pittsburgh	*Wilcox Brothers, 5157 Liberty Avenue
QUEBEC	
Montreal	J. A. Faguy & Sons Ltd., 1372 Dorcester St., West
Quebec City	Charles Boucher Inc., 558-1/2 Rue St. -Vallier
TEXAS	
Dallas	Allen Service Center of Dallas, 1812 South Lamar Street
El Paso	Western Battery & Magneto Co., Inc., 1600 Texas Street
Ft. Worth	Allen Service Center of Ft. Worth, 410 East Berry Street
Houston	Allen Service Center of Houston, 1321 Houston Avenue
Houston	Tony's Electric & Equipment Co., 1610 W. Capitol
Waco	*Instrument & Meter Service Co., 620 Washington Street
UTAH	
Salt Lake City	*Allen Equipment Service, 1000 Pinocchio Drive
VIRGINIA	
Richmond	Smith's Television & Appliance Service, Inc. 5319 Lakeside Avenue
WASHINGTON	
Seattle	*Instrument Laboratory Inc., 934 Elliott Avenue, West
WEST VIRGINIA	
Charleston	A. C. Ignition Co., 530 Washington Street
WISCONSIN	
Milwaukee	Schreiber Clock Service, 1612 West Center Street

NOTE: - ALL FIELD SERVICE STATIONS MARKED (*) CARRY A LARGE STOCK OF REPLACEMENT PARTS.

ALLEN ELECTRIC AND EQUIPMENT COMPANY
2101-2117 North Pitcher Street
KALAMAZOO, 13F, MICHIGAN, U. S. A.

FORM NO. 251D
(Supersedes Form No. 251C)

Printed in U. S. A.

OPERATING INSTRUCTIONS

FOR THE

ALLEN E-323 AND E-323X POWER TIMING LIGHT

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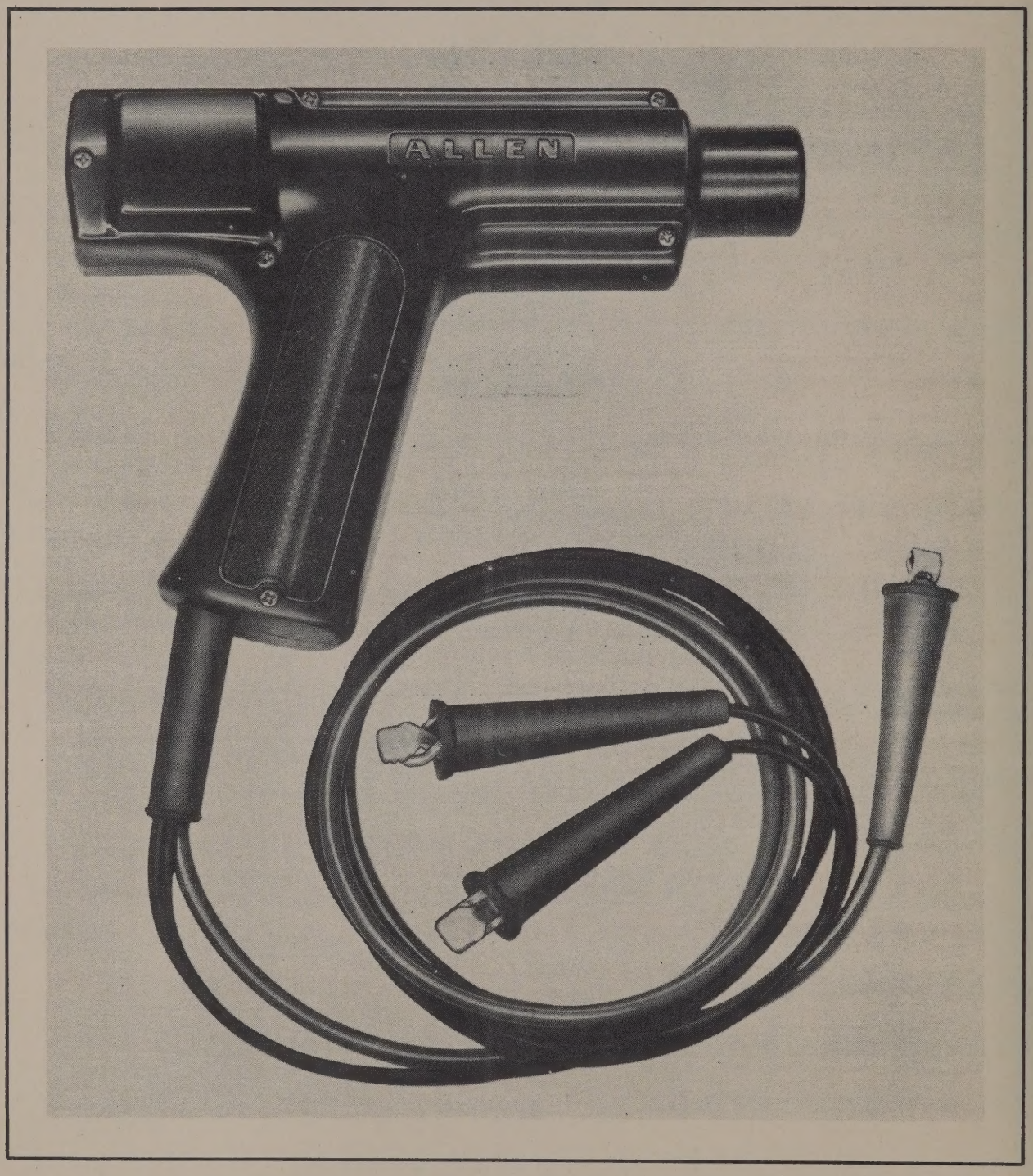
PRICE
25 CENTS

ALLEN ELECTRIC AND EQUIPMENT COMPANY

MANUFACTURERS OF TUNE-UP,
BATTERY, ELECTRICAL AND WELDING EQUIPMENT
2101-2117 NORTH PITCHER STREET
KALAMAZOO 13F, MICHIGAN, U. S. A.

4M1 - 952

Printed in U.S.A.



THE MODEL E-323 POWER TIMING LIGHT
FIGURE NO. 1

THE MODELS E-323 and E-323X
POWER TIMING LIGHTS

PURPOSE OF THE POWER TIMING LIGHT

The Allen Model E-323 operates from the vehicle 6-volt storage battery and the Model E-323X operates from the vehicle 12-volt storage battery. Each model employs a built-in power supply, which greatly amplifies the normal flashes obtained from conventional timing lights which operate direct from the ignition coil. The amplified light is intense enough for setting ignition timing without the necessity of emphasizing the timing marks with white paint or chalk.

The timing light employs the principle of light synchronized with motion, thus enabling the operator to see the fast moving timing marks as stationary for timing the ignition distributor to the engine and checking the overall condition of the automatic spark advance, vacuum spark control, synchronization and general condition of the distributor.

SETTING THE TIMING

Timing specifications are usually given for No. 1 cylinder, which is the one in front, next to the radiator. When reference is made to left-hand or right-hand as with V-type engines, this applies to that side of the engine when viewed from the driver's seat of the vehicle.

NOTE: - It is important that the Cam Angle is correct BEFORE adjusting the timing, as any change in Cam Angle will also change the ignition timing. On distributors equipped with an octane selector, the selector should be set at zero position at the time of setting the timing.

GENERAL INFORMATION

Most engines are equipped with timing marks and a reference pointer which must line up at the instant the No. 1 cylinder fires. If the timing mark when seen with the timing light is off to either side of the reference pointer, it indicates that the distributor breaker contacts which fire No. 1 spark plug opened too early or too late for the correct ignition timing.

The engine is properly timed when the timing mark and pointer are in line. The timing marks may be found on the flywheel in the form of a marked line or a steel ball embedded in the flywheel. In lieu of flywheel markings some engines have the timing marks located at the front of the engine on the crankshaft impulse neutralizer, damper flywheel or harmonic balancer.

Ignition timing should be set with the engine operating at manufacturer's recommended idle speed, usually from 300 to 600 R.P.M. To set ignition timing, simply turn the distributor housing in its mounting in the direction of rotation to retard the timing and in the opposite direction to advance the timing.

The procedure for setting ignition timing of all engines is not identical; different manufacturers making different provisions. Consequently, it is always best to refer to the particular manufacturer's recommendations and adhere to them for best results.

GENERAL INFORMATION - (CONTINUED)

Generally, all manual controlled distributors are set with the distributor in the advance position. Most semi-automatic, full automatic and vacuum controlled distributors are set with the octane selector or clamp arm assembly at "0" position.

Some distributors equipped with a vacuum control have a 1/8 inch hole in both the advance arm and clamp arm. When timing this type distributor it is necessary to align the holes with an 1/8 inch pin to correctly set the ignition timing.

IMPORTANT INFORMATION

ALWAYS CHECK BATTERY POLARITY. IF TIMING LIGHT IS CONNECTED TO THE BATTERY IN REVERSED POLARITY, IT MAY FLASH PROPERLY FOR A SHORT TIME AND THEN STOP FLASHING UNTIL THE LEADS ARE CONNECTED IN THE CORRECT POLARITY. FIGURE NO. 2.

Any Timing Light designed for use in timing automotive engines, depends upon the high voltage pulse found at the spark plugs.

This voltage varies widely in amplitude in cars of different manufacture, cars of the same make, and even at the plugs on the same car.

If the flash tube in the Timing Light is set for maximum sensitivity to assure proper operation on unusually low voltages, double tripping may occasionally take place, due to proximity of adjacent plugs or wiring, when the light is used on cars having very high voltage at the plug.

If the flash tube is adjusted to function properly on unusually high voltage peaks, the timing light may occasionally skip or misfire on very low voltages, frequently caused by a defective ignition system. A FAULTY OR LEAKING IGNITION SYSTEM WILL CAUSE THE TIMING LIGHT TO MISFIRE OR DOUBLE FLASH. THE IGNITION SYSTEM SHOULD BE TESTED BEFORE THE TIMING IS CHECKED.

Occasional mis-firing, or double tripping is not indicative of trouble in the Timing Light, neither does it interfere with the timing procedure.

RELATION BETWEEN CAM ANGLE AND IGNITION TIMING

Cam Angle change affects the initial ignition timing to the extent of one degree crankshaft timing for each degree change in the cam angle setting. For example: With a distributor having 34 degrees cam angle specified, but actually having a cam angle of 30 degrees and timed for this angle, a change to the correct angle of 34 degrees would mean a change of 4 degrees. This means that the engine would be timed 4 degrees late when the cam angle was adjusted correctly to the specified 34 degrees.

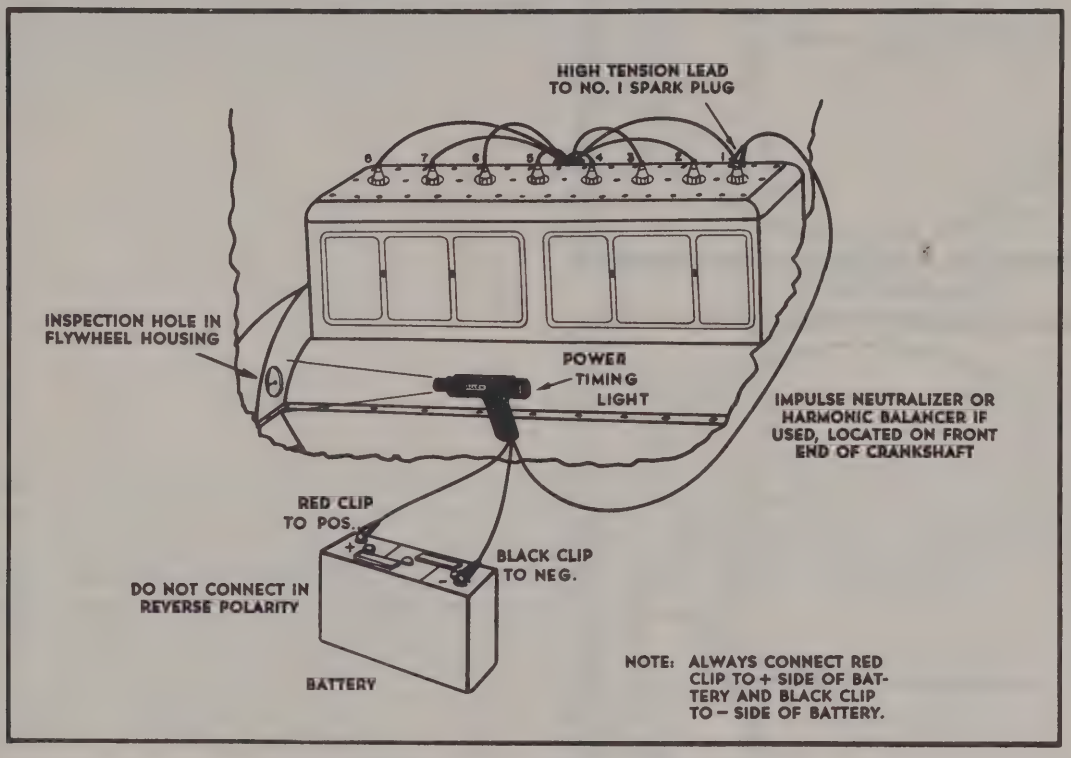
The relation between cam angle and ignition timing can be seen by noting the engine R.P.M. for a fixed throttle setting before changing the cam angle and then noting the change in engine R.P.M. and timing mark.

Because of the change in ignition timing with cam angle change, it is always necessary to re-time the distributor after cam angle has been adjusted. It is important that the Cam Angle is correct when setting ignition timing.

INSTRUCTIONS FOR IGNITION TIMING

CONNECTIONS

1. Connect the RED clip to POSITIVE side of battery.
2. Connect the BLACK clip to NEGATIVE side of battery.
   NOTE: - The Model E-323 is designed for use with 6-volt battery only, whereas the Model E-323X is designed for use with 12-volt battery only. Refer to instructions on the handle for proper operating voltage.
3. Connect high tension lead from the Timing Light to the No. 1 spark plug, leaving the distributor to spark plug lead attached to the spark plug.


HIGH TENSION LEAD TO NO. 1 SPARK PLUG
INSPECTION HOLE IN FLYWHEEL HOUSING
POWER TIMING LIGHT
IMPULSE NEUTRALIZER OR HARMONIC BALANCER IF USED, LOCATED ON FRONT END OF CRANKSHAFT
RED CLIP TO POS.
BLACK CLIP TO NEG.
DO NOT CONNECT IN REVERSE POLARITY
BATTERY
NOTE: ALWAYS CONNECT RED CLIP TO + SIDE OF BATTERY AND BLACK CLIP TO – SIDE OF BATTERY.

CONNECTIONS TO POWER TIMING LIGHT
FIGURE NO. 2

PROCEDURE

4. The distributor breaker points should be clean and set to the manufacturer's recommended cam angle. This can be very quickly and easily determined with the Allen Syncrograph or Cam Angle Tester.

5. Operate engine at manufacturer's recommended idle speed, usually from 300 to 600 R.P.M. Engine speed can be measured with the Allen Dwell-Tach Tester.

   Allow the engine to run until normal operating temperature is reached. This is done to assure that the engine operates smoothly and that all automatic carburetor controls have performed their function.

6. Aim the flashes from the Power Timing Light on the timing mark and reference pointer. The timing mark will appear stationary in the flashes of the Light. If the distributor is timed correctly, the timing mark will align with the stationary pointer. If the timing is late, the timing mark will be after the reference pointer in the direction of rotation. If the timing is early, the timing mark will be before the reference pointer.

7. If the timing mark does not align with the pointer, loosen and rotate the distributor in its mounting until mark on flywheel is in line with the pointer.

TYPICAL TIMING MARKS

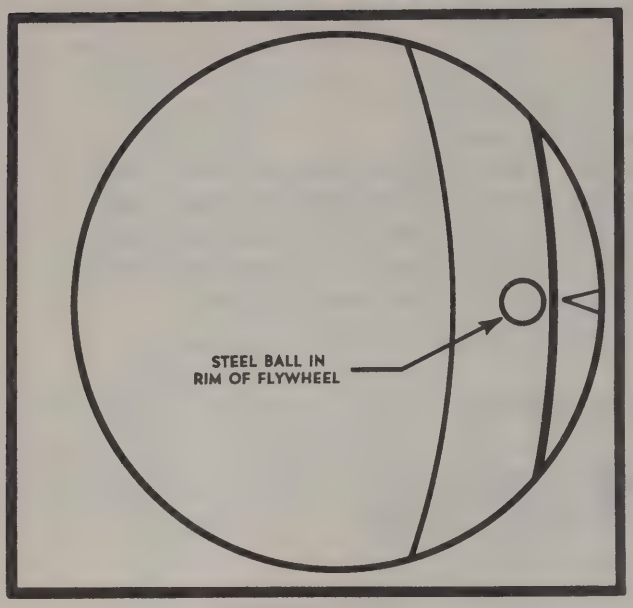


FIGURE NO. 3

The No. 1 cylinder to fire when the steel ball in flywheel is in line with pointer. See Figure No. 3.

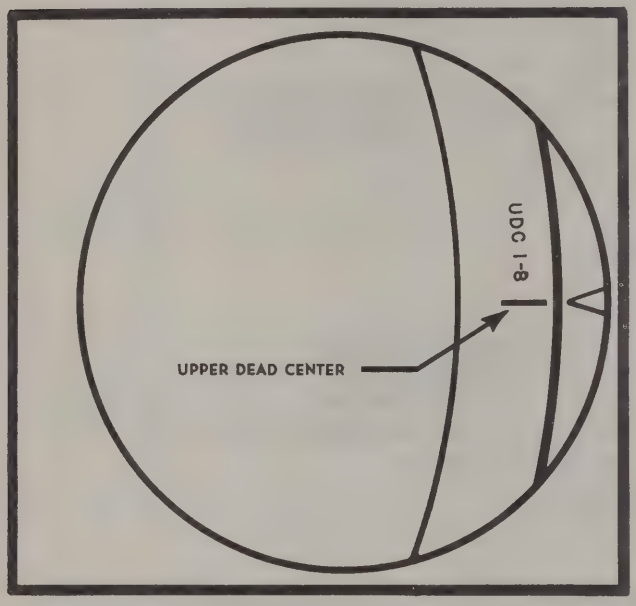


FIGURE NO. 4

The No. 1 cylinder to fire at upper dead center when mark on flywheel is in line with pointer. See Figure No. 4.

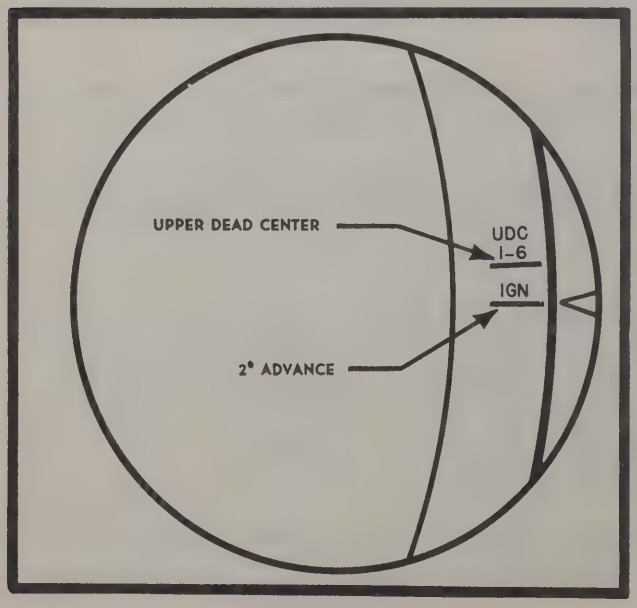


FIGURE NO. 5

The No. 1 cylinder to fire when the "IGN" mark on flywheel is in line with pointer. See Figure No. 5.

TYPICAL TIMING MARKS

The No. 1 cylinder to fire when flywheel mark "IGN. ONE" is in line with pointer. The first mark "IGN. ONE" is 6° before "UDC" and the second mark is 2° before "UDC" allowing a 4° range for variation in cam follower wear, automatic advance and grade of fuel. See Figure No. 6.

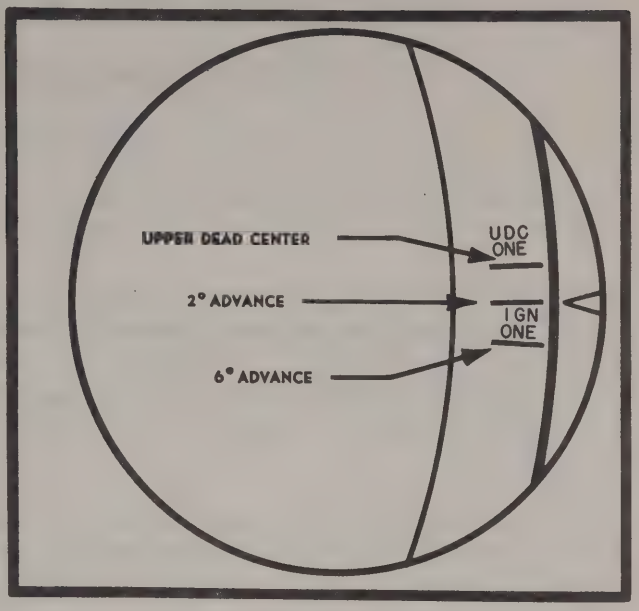


FIGURE NO. 6

The marks on the crankshaft impulse neutralizer represent degrees before and after top dead center. When setting the ignition timing, refer to the manufacturer's specifications and set so corresponding degrees are in line with the pointer. This may vary from "DC" to 7° before "DC" depending upon manufacturer's specifications. See Figure No. 7.

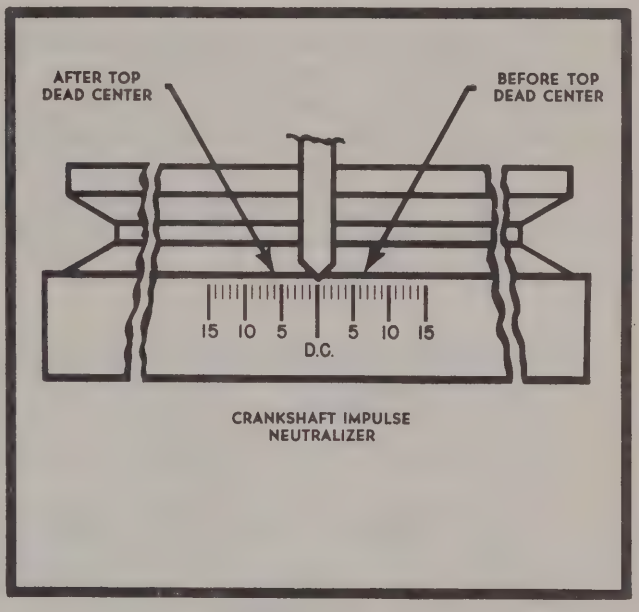


FIGURE NO. 7

The No. 1 cylinder to fire when 1G/A on timing disc is in line with pointer. See Figure No. 8.

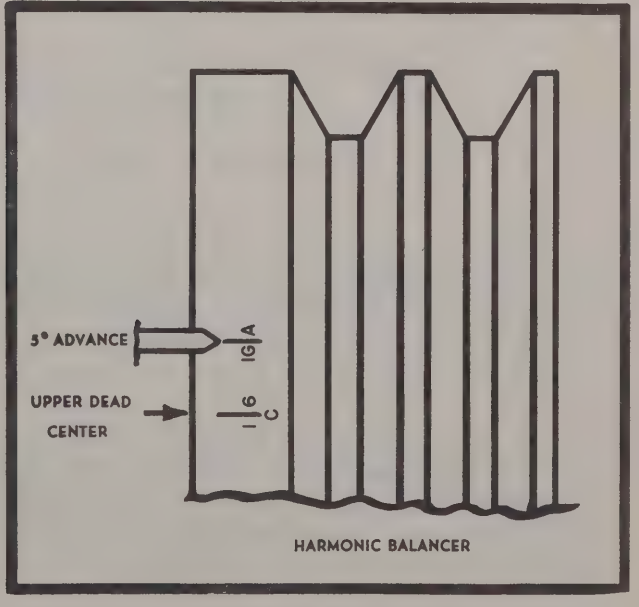


FIGURE NO. 8

ADJUSTMENT FOR MAXIMUM POWER, PERFORMANCE, AND ECONOMY

The standard setting of the timing as recommended by the vehicle manufacturers is determined on the basis of securing maximum power, performance and economy under average conditions and using the type of fuel recommended.

Provisions are also made by the vehicle manufacturers to vary the standard setting by three or four degrees to compensate for certain conditions.

In high altitudes there is less tendency for an engine to detonate or ping. Premium grades of fuel provide better performance and have higher anti-knock qualities.

With the use of this type of fuel, better performance, more power and economy can generally be obtained with the ignition timing advanced slightly ahead of the standard setting, but within the limits generally recommended by the vehicle manufacturer.

If an engine has an excessive accumulation of carbon or a lower grade of fuel is used, it may be necessary, in order to eliminate excessive pinging, to retard the spark below the standard setting. However, if this is done, the power, performance and economy of the engine are no longer at their best.

If after setting the distributor to the timing mark with the Timing Light it is found that the engine detonates or pings, one or more of the following conditions may be the cause.

a. Distributor automatic advance or vacuum control not performing properly.

b. Faulty spark plugs, heat range or gaskets.

c. Faulty or improperly adjusted valve tappets.

d. Lean carburetor adjustment or air leaks at carburetor.

e. Excessive carbon in cylinder head.

f. Clogged cooling system resulting in excessive engine temperature.

g. Low grade of gasoline.

Advance the timing as far as possible up to the point of detonation or ping. This will require the use of a chassis dynamometer or a road test. The procedure for road testing is to drive the vehicle on a level road in high gear at about 10 miles an hour, then suddenly accelerate to wide open throttle, allowing the speed to pick up to about 30 miles an hour.

If no detonation or ping is heard when accelerating from 10 to 30 miles an hour, slightly advance the timing up to the point of slight detonation or ping and then retard the timing until only a trace of the detonation or ping remains. This adjustment will give maximum acceleration, power and mileage for the grade of fuel used when setting the timing.

OTHER USES FOR POWER TIMING LIGHT

INSTRUCTIONS FOR SYNCHRONIZING DOUBLE BREAKERS

1. Time distributor to engine with Timing Light.

2. Remove the Timing Light high tension lead from the No. 1 spark plug and connect it to the spark plug of the cylinder indicated at the second timing mark. The second timing mark is usually indicated as "SYN 2-7" or "IGN 2-7", which indicates that the No. 2 or No. 7 spark plug should fire when the timing mark lines up with the pointer.

3. If the second timing mark is on either side of the pointer, remove the distributor from the engine and adjust the movable breaker assembly so that the points synchronize with the stationary points. This can be easily accomplished on the Allen Syncrograph.

INSTRUCTIONS FOR CHECKING AUTOMATIC ADVANCE FOR FROZEN OR STICKING ADVANCE MECHANISM

1. Time distributor to engine with Timing Light.

2. Direct the Timing Light on the timing mark, and gradually increase engine speed while watching the timing mark. The timing mark should remain stationary until the engine speed is reached at which the automatic advance should start to operate, usually from 500 to 1000 R.P.M.

3. If the timing mark does not move as the engine speed is increased, or if it suddenly releases, the advance mechanism is frozen or sticking in which case the distributor should be removed and replaced or repaired.

INSTRUCTIONS FOR CHECKING DISTRIBUTOR CAM WEAR

1. Time distributor to engine with Timing Light.

2. Remove the Timing Light high tension lead from the No. 1 spark plug and connect it to the No. 6 or No. 8 cylinder spark plug, as indicated by the timing mark "IGN 1-6" or "IGN 1-8". The timing mark should be in line with the pointer.

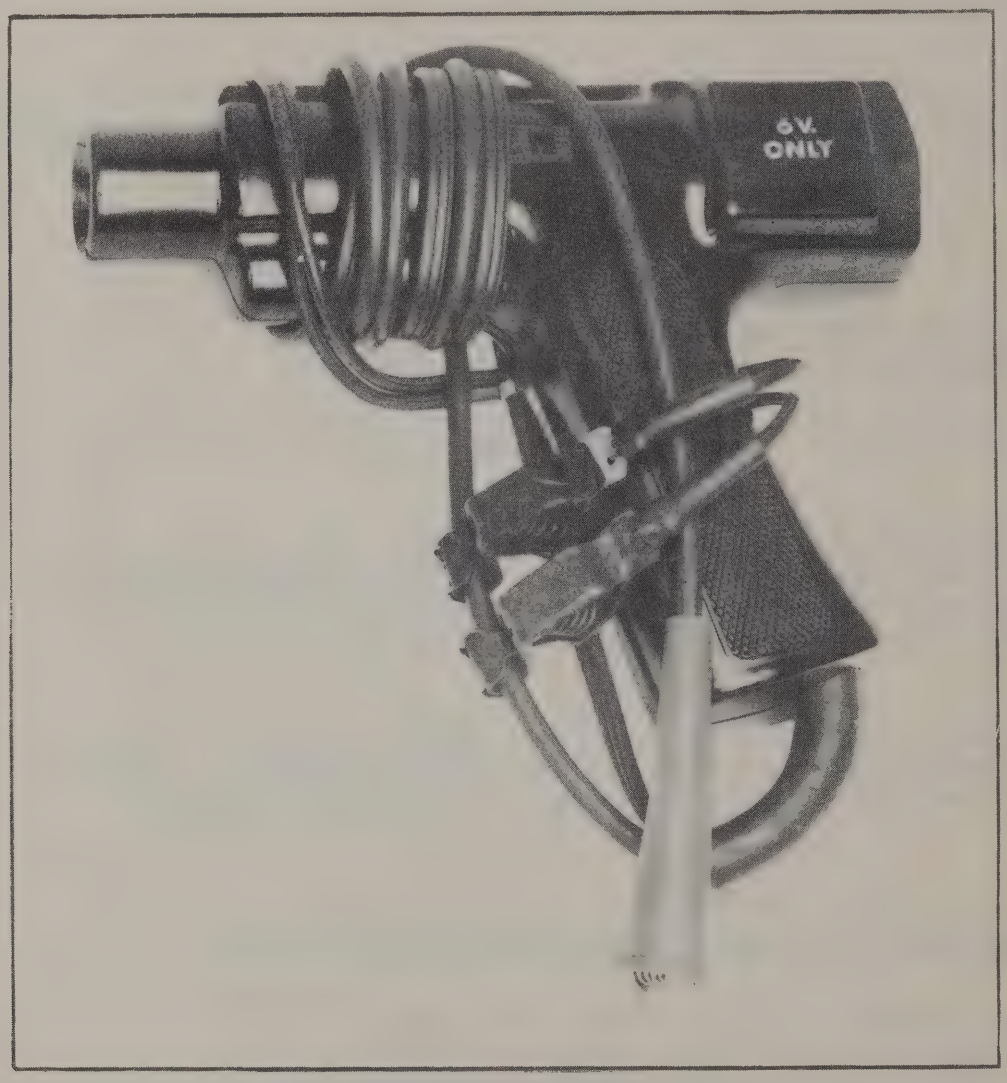
3. If the timing mark does not line up with the pointer, the distributor cam lobes have excessive wear, in which case the distributor should be removed and replaced or repaired.

VIBRATOR

The power for the lamp is furnished by a built-in power supply which employs a synchronous vibrator. When replacement is necessary, due to erratic operation or failure of the power supply, replace the Vibrator with Mallory Type 245 or Allen Part No. 6709.

CARE OF POWER TIMING LIGHT

When Timing Light is not in operation, the light should be kept in a drawer where it will not become damaged. For convenience, the leads may be wrapped around the barrel of the gun as illustrated in Figure No. 9. Be careful not to clip the teeth of the clips into the leads or clip insulators. This will ruin the cables and destroy the insulating properties of the insulators on the clips.



WRAP LEADS AROUND BARREL OF GUN
BEING CAREFUL NOT TO CLIP THE TEETH
OF THE CLIPS INTO THE CABLE OR CLIP INSULATORS
FIGURE NO. 9

File in Allen Service Handbook.

5-15-50

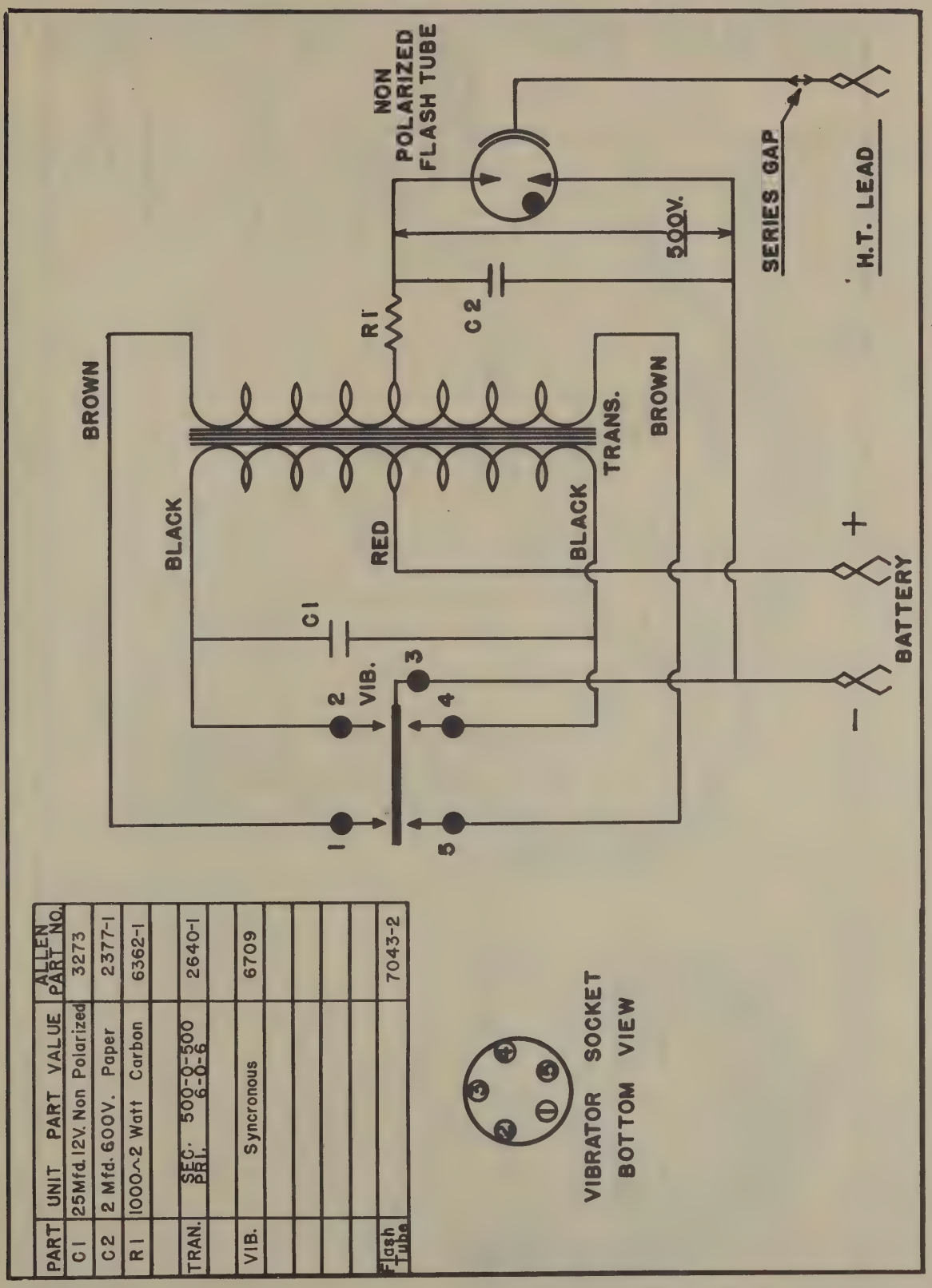
E-323

SERIES "F"

ALLEN ELECTRIC AND EQUIPMENT CO.

E-323 POWER TIMING LIGHT

SCHEMATIC WIRING DIAGRAM



PART	UNIT PART VALUE	ALLEN PART NO.
C1	25Mfd. 12V. Non Polarized	3273
C2	2 Mfd. 600V. Paper	2377-1
R1	1000Ω-2 Watt Carbon	6362-1
TRAN.	SEC. 500-0-500 PRI. 6-0-6	2640-1
VIB.	Syncronous	6709
Flash Tube		7043-2

VIBRATOR SOCKET
BOTTOM VIEW

ALLEN ELECTRIC AND EQUIPMENT CO.

2101 N. PITCHER ST. KALAMAZOO, MICHIGAN, U. S. A.

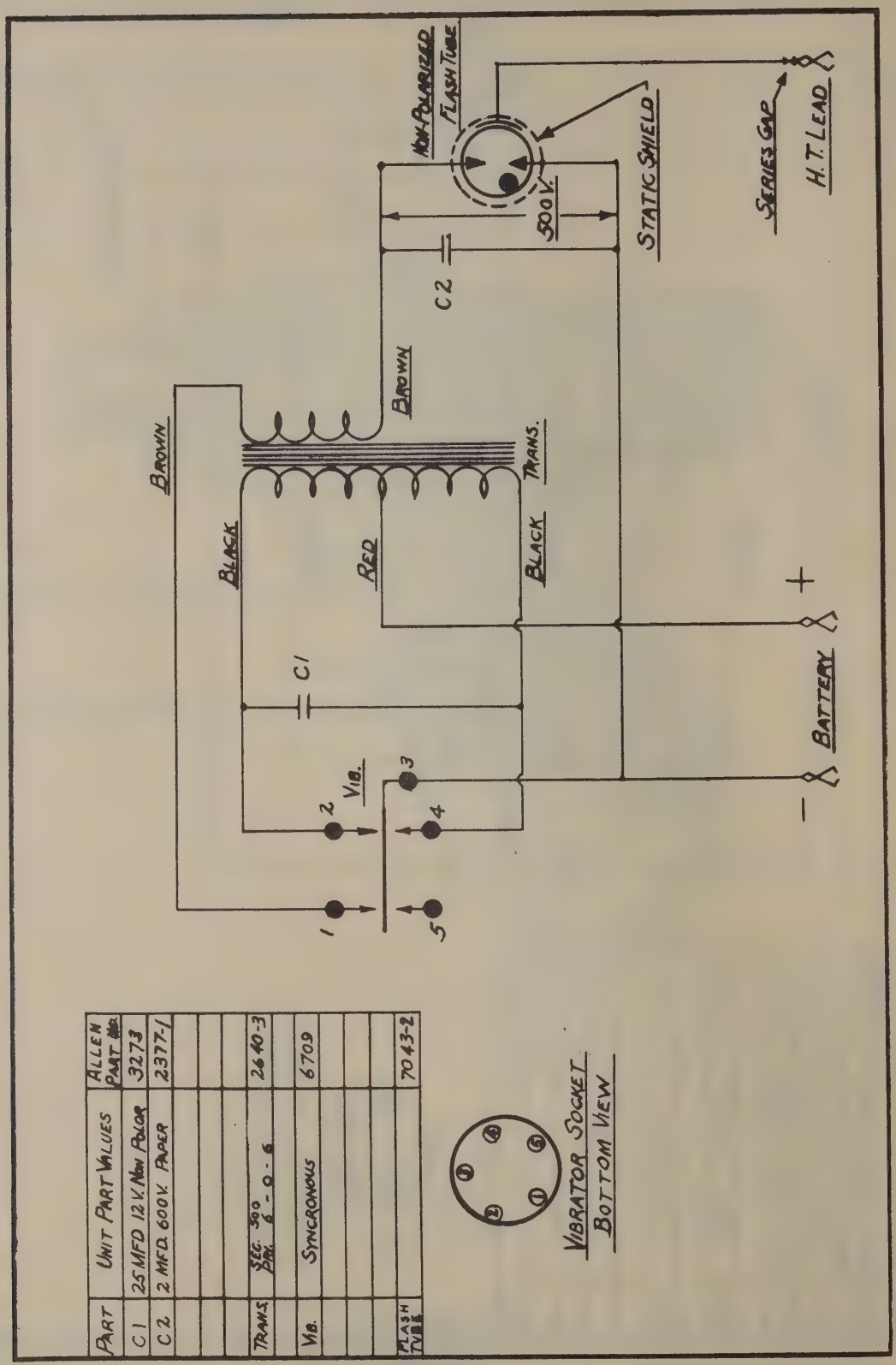
File in Allen Service Handbook.

5-15-50

E-323
SERIES "G"

ALLEN ELECTRIC AND EQUIPMENT CO.

E-323 POWER TIMING LIGHT
SCHEMATIC WIRING DIAGRAM



PART	UNIT PART VALUES	ALLEN PART NO.
C1	25 MFD 12 V. NON POLAR	3273
C2	2 MFD 600 V. PAPER	2377-1
TRANS.	SEC. 300 PRI. 6-0-6	2640-3
VIB.	SYNCRONOUS	6709
FLASH TUBE		7043-2

ALLEN ELECTRIC AND EQUIPMENT CO.

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FORM NO. 681

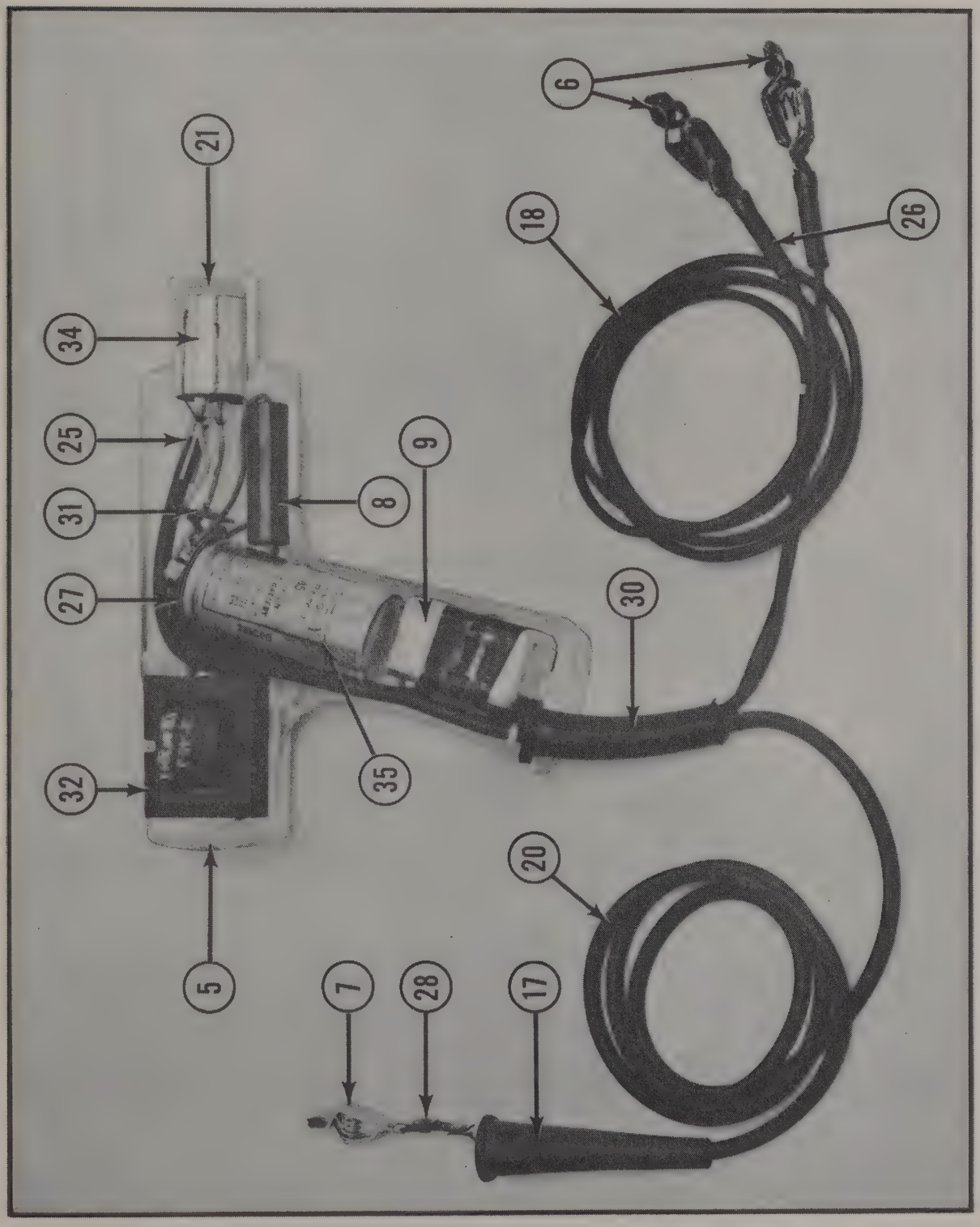
Printed in U.S.A.

E-323
E-323-X
Series "H" & "J"

ALLEN ELECTRIC AND EQUIPMENT COMPANY

MODEL E-323 AND E-323-X POWER TIMING LIGHT

PARTS LOCATION PHOTOGRAPH

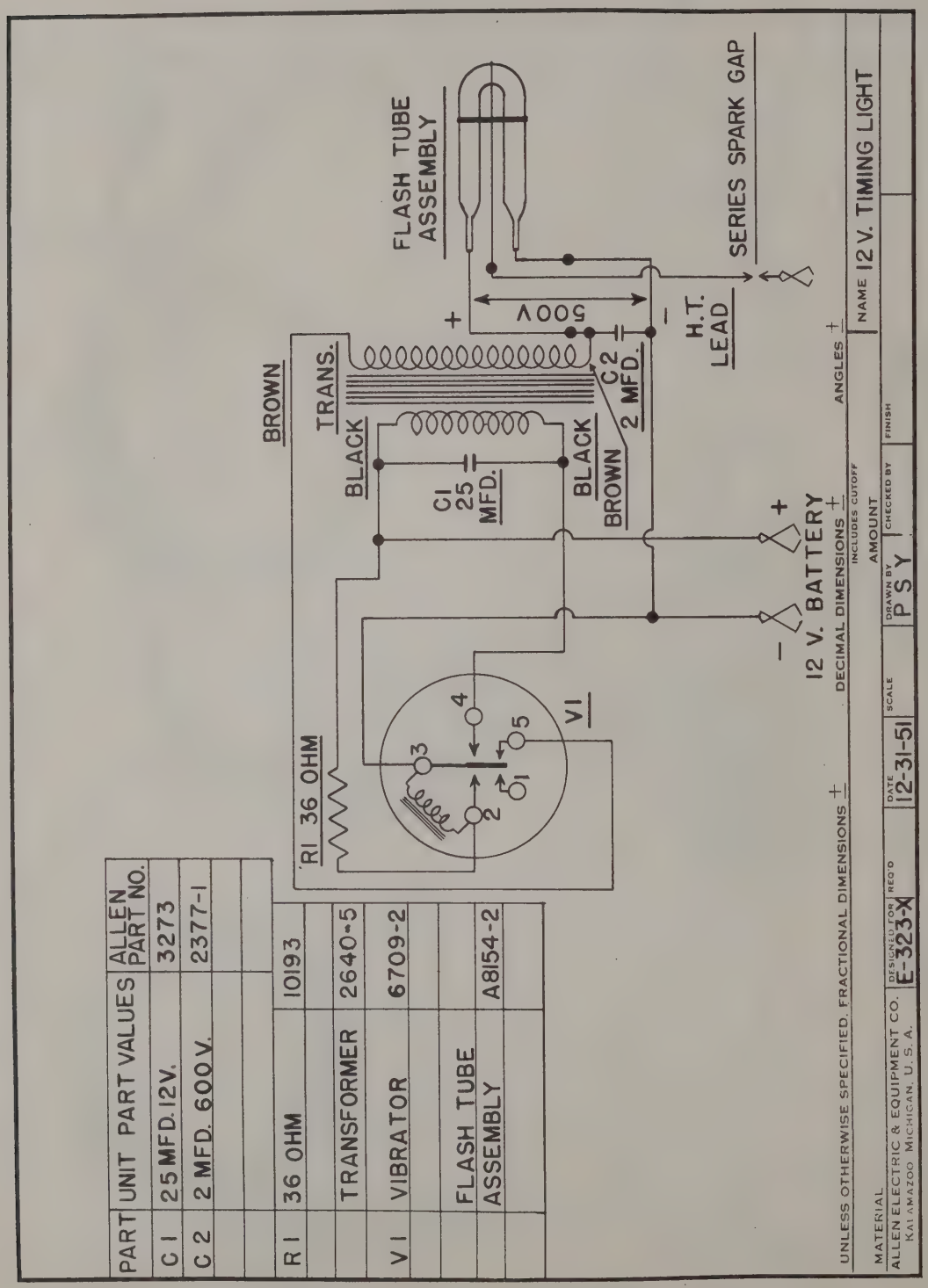


ALLEN ELECTRIC AND EQUIPMENT COMPANY
KALAMAZOO, 13F, MICHIGAN, U.S.A.

ALLEN ELECTRIC AND EQUIPMENT COMPANY

MODEL E-323 AND E-323-X POWER TIMING LIGHT

SCHEMATIC WIRING DIAGRAM



ALLEN ELECTRIC AND EQUIPMENT COMPANY

MODEL E-323 AND E-323-X POWER TIMING LIGHT REPLACEMENT PARTS LIST

NOTE: Specify Model and Serial Number of Equipment for which parts are desired. This is essential to insure prompt handling of your order.

KEY	PART	DESCRIPTION	PART NO.
1	Adapter	Distributor Adapter	A10821
2	Case	R. H. Case without cushions	D7670-1
3	Case	L. H. Case without cushions	D7671-1
4	Case	R. H. Case with rubber cushions	A7693-1
5	Case	L. H. Case with rubber cushions	A7694-1
6	Clip	Clip for Battery Lead (2 Req.)	1041
7	Clip	Clip for Spark Gap	8169
8	Condenser	Vibrator Condenser 25 Mfd. 12 volt	3273
9	Condenser	2 Mfd. 600 volt condenser	2377-2
10	Cushion	1/8" thick sponge rubber	7677
11	Cushion	1/8" thick sponge rubber	7679
12	Cushion	1/8" thick sponge rubber (3 Req.)	7690
13	Diagram	Schematic wiring diagram E-323 (6 volt) Series G and J	A8150-5
14	Diagram	Wiring Diagram E-323 (6 volt) Series G and J	A8149-5
15	Diagram	Schematic wiring diagram E-323-X (12 volts) Series H and J	A11201
16	Diagram	Wiring Diagram E-323-X (12 volts) Series H and J	A11200
17	Insulator	Insulator for 8169 Battery Clip	7042
18	Lead	Battery Lead E-323	A7676-1
19	Lead	Battery Lead E-323-X	A7676-2
20	Lead	H. T. lead with Spark Gap, Clip and Insulator	A8167
21	Lens	Glass Lens	7674
22	Lug	Lug used as strain relief on H. T. Lead (2 Req.)	2401
23	Resistor	36 ohm Resistor wire wound used on E-323-X, 12 volt D. C. only	10193

ALLEN ELECTRIC AND EQUIPMENT COMPANY
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MODEL E-323 AND E-323-X POWER TIMING LIGHT
REPLACEMENT PARTS LIST - (CONTINUED)

KEY	PART	DESCRIPTION	PART NO.
24	Sleeve	.066 I. D. plastic tubing (2 Req.)	6596-14
25	Sleeve	5/16" I. D. plastic tubing	7691
26	Sleeve	3/16" I. D. plastic tubing (2 Req.)	6834-4
27	Socket	5 prong waffer socket	6659-2
28	Spark Gap	Spark Gap for H. T. lead	A7687-2
29	Strain Relief	Aluminum Strain Relief	7046
30	Strain Relief	Rubber Strain Relief	7672
31	Terminal Strip	2 Terminals	6889-1
32	Transformer	Transformer for 6 volt D. C.	2640-3
33	Transformer	Transformer for 12 volt D. C.	2640-5
34	Tube	Replacement tube, complete	A8154-2
35	Vibrator	Replacement vibrator type 45	6709-3

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